

What is claimed is:

1. A liquid crystal display device, comprising:
a first substrate;
a second substrate adjacent the first substrate;
a plurality of switching elements arranged on the first substrate;
a plurality of organic pixel electrodes on the first substrate; and
a liquid crystal layer interposed between the first and second substrates.
2. The liquid crystal display device of claim 1, wherein the organic pixel electrodes include an organic polymer.
3. The liquid crystal display device of claim 2, wherein the organic polymer is PEDOT (polyethylenedioxythiophene).
4. The liquid crystal display device of claim 1, wherein the switching elements include thin film transistors.
5. The liquid crystal display device of claim 4, wherein the thin film transistors are amorphous silicon thin film transistors.
6. The liquid crystal display device of claim 1, wherein each switching element comprises:
a gate electrode;
a gate insulating layer over the gate electrode;
a semiconductor layer on the gate insulating layer and over the gate electrode;
and
source and drain electrodes on the semiconductor layer.
7. The liquid crystal display device of claim 6, wherein the organic pixel electrodes electrically connect to the drain electrodes.

8. The liquid crystal display device of claim 6, further comprising a passivation layer over the plurality of switching elements and over the first substrate.

9. The liquid crystal display device of claim 8, wherein the passivation layer includes an organic material.

10. The liquid crystal display device of claim 9, wherein the organic material includes BCB.

11. The liquid crystal display device of claim 9, wherein the organic material includes acryl.

12. The liquid crystal display device of claim 8, wherein the passivation layer includes an inorganic material.

13. A liquid crystal display device including a thin film transistor substrate, wherein the thin film transistor substrate comprises:

a substrate having an active area and a pad area;

a gate line and a crossing data line;

a thin film transistor at a crossing between the gate and data lines;

a passivation layer over the thin film transistor, wherein the passivation layer includes a contact hole; and

an organic pixel electrode formed in the active area, wherein the organic pixel electrode connects to the thin film transistor through the contact hole.

14. The liquid crystal display device of claim 13, wherein the organic pixel electrode includes an organic polymer.

15. The liquid crystal display device of claim 14, wherein the organic polymer is PEDOT (polyethylenedioxythiophene).

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16. The liquid crystal display device of claim 14, wherein the organic pixel electrode is electrically-conductive.

17. The liquid crystal display device of claim 14, wherein the organic pixel electrode is in the pixel area.

18. A method of fabricating a liquid crystal display device, comprising:
 forming a plurality of thin film transistors on a first substrate;
 forming a passivation layer on the first substrate and over the plurality of thin film transistors;
 forming a plurality of organic pixel electrodes on the passivation layer, wherein the plurality of organic pixel electrodes electrically connect to the plurality of thin film transistors;
 attaching the first substrate to a second substrate such that a gap exists between the first substrate and the second substrate; and
 interposing a liquid crystal in the gap.

19. The method of claim 18, wherein forming the plurality of thin film transistors includes:
 forming a gate electrode on the first substrate;
 forming a gate insulating layer over the first substrate and over the gate electrode;
 forming a semiconductor layer on the gate insulating layer and over the gate electrode; and
 forming a source electrode and a drain electrode on the semiconductor layer.

20. The method of claim 19, wherein forming the passivation layer includes:
 forming a passivation layer over the source and drain electrodes; and
 patterning the passivation layer to expose a portion of a drain electrode.

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21. The method of claim 18, wherein forming a plurality of organic pixel electrodes includes:
 - locating an organic polymer layer on the first substrate; and
 - selectively exposing portions of the organic polymer layer to light so as to make the exposed portions electrically-conductive.
22. The method of claim 21, wherein locating the organic polymer layer on the first substrate is performed by coating.
23. The method of claim 21, wherein locating the organic polymer layer on the first substrate is performed by screen printing.
24. The method of claim 18, wherein forming the plurality of organic pixel electrodes includes:
 - locating PEDOT (polyethylenedioxythiophene) on the passivation layer; and
 - selectively illuminating the PEDOT (polyethylenedioxythiophene) to form the plurality of organic pixel electrodes.
25. The method of claim 24, wherein the PEDOT (polyethylenedioxythiophene) is located on the passivation layer by coating.
26. The method of claim 24, wherein the PEDOT (polyethylenedioxythiophene) is located on the passivation layer by screen printing
27. The method of claim 18, wherein the passivation layer includes an organic material.
28. The method of claim 18, wherein the passivation layer includes an inorganic material.

29. A method of fabricating a liquid crystal display device, comprising:
forming a gate line and a crossing data line on a substrate;
forming a thin film transistor on the substrate and adjacent to the crossing;
forming a passivation layer over the substrate, including over the thin film transistor; and
forming an organic pixel electrode on the passivation layer.
30. The method of claim 29, wherein the organic pixel electrode electrically connects to the thin film transistor.
31. The method of claim 29, further comprising:
simultaneously forming a gate pad with the gate line;
simultaneously forming a data pad with the data line; and
simultaneously forming organic conductive layers on the gate and data pads.
32. The method of claim 29, wherein forming the organic pixel electrode includes:
forming an organic polymer layer on the passivation layer; and
illuminating selected portions of the organic polymer layer so as to render the exposed portions electrically-conductive.
33. The method of claim 32, wherein the organic polymer layer includes PEDOT (polyethylenedioxythiophene).